

The invention claimed is:

1. A shift mechanism, comprising:
 - a base;
 - a shift gate having a plurality of notches defining gear positions;
 - a shift lever movably mounted to the base;
 - a pawl configured to move between an engaged position, wherein the pawl engages the shift gate and restricts movement of the shift lever, and a disengaged position;
 - a button on the shift lever operably connected to the pawl such that pushing of the button moves the pawl from the engaged position to the disengaged position; and
 - a pneumatic mechanism providing a first resistance against movement of the pawl in a first direction from the engaged position to the disengaged position, and providing a second resistance against movement of the pawl in a second direction from the disengaged position to the engaged position, the second resistance being greater than the first.
2. The shift mechanism of claim 1, including:
 - a linkage disposed in the shift lever and coupled to the pawl for shifting the pawl between the engaged and disengaged positions.
3. The shift mechanism of claim 2, wherein:
 - said pawl is biased into the engaged position.
4. The shift mechanism of claim 2, wherein:
 - the shift lever includes a knob, the button being positioned on the knob;
 - said pneumatic mechanism includes a passageway through which fluid passes as the button is depressed, the pneumatic mechanism including a movable member that selectively restricts the passageway depending upon the direction of movement of the button.
5. The shift mechanism of claim 4, wherein:
 - the movable member comprises a resilient ring;

the pneumatic mechanism includes an annular groove, the resilient ring disposed in the annular groove.

6. The shift mechanism of claim 5, wherein:

the pneumatic mechanism includes a cylindrical chamber in the knob and a plunger, at least a first end portion of which is slidably disposed in the cylindrical chamber, the annular groove located adjacent the first end portion of the plunger.

7. The shift mechanism of claim 6, wherein:

the plunger defines an axis along which the plunger moves;

the chamber defines a chamber sidewall;

the annular groove defines a base wall and opposed sidewalls;

the resilient ring frictionally engaging the base wall of the groove and the chamber sidewall and shifting between the sidewalls of the annular groove upon movement of the plunger in the chamber.

8. The shift mechanism of claim 7, wherein:

the plunger includes a slot extending axially from the base wall towards a second end portion of the plunger to form the passageway, the resilient ring closing off the passageway as the plunger is moved outwardly, and permitting fluid flow through the passageway as the plunger is moved inwardly.

9. The shift mechanism of claim 8, wherein:

the resilient ring comprises an O-ring.

10. A pawl release mechanism for shifters, comprising:

a shift knob having a cavity defining a sidewall;

a plunger having at least a first end portion movably disposed in the cavity, the first end portion including an annular groove defining a base wall, the first end portion having a passageway extending from the annular groove away from the first end portion; and

a resilient ring in the annular groove, the resilient ring having an outer peripheral edge sealingly engaging the sidewall, and an inner edge engaging the base wall of the annular groove, the resilient ring configured to shift within the annular groove to close off the passageway upon movement of the plunger.

11. The pawl release mechanism of claim 10, wherein:

the plunger includes a slot forming the passageway, the slot extending from the base wall of the annular groove away from the first end portion.

12. The pawl release mechanism of claim 10, wherein:

the resilient ring comprises an O-ring.

13. The pawl release mechanism of claim 10, wherein:

the cavity comprises a first cavity having a cylindrical shape and defining a first diameter;

the knob defining a second cylindrical cavity coaxial with the first cavity and defining a second diameter that is larger than the first diameter;

the plunger including a second cylindrical end portion slidably disposed in the second cavity.

14. The pawl release mechanism of claim 13, wherein:

the plunger includes a pair of spaced-apart extensions extending generally parallel to the first end portion, and having outer cylindrical surface portions contiguous with the second cylindrical end portion, wherein the first end portion is disposed between the extensions.

15. The pawl release mechanism of claim 13, wherein:

the pawl release mechanism includes a shift lever connected to the shift knob, and an axially movable link mounted in the shift lever;

the second cavity defines an axis;

the second cylindrical end portion of the plunger includes a wedge surface disposed non-orthogonal relative to the axis, the wedge surface configured to push the link axially along the shift lever.

16. A shift mechanism for automatic transmissions, comprising:

a base including a gate having a plurality of detent gates;

a shift lever movably mounted to said base, said shift lever having an elongated cavity and a knob mounted to a first end of said shift lever, said knob including a release button;

a pawl movably mounted on said shift lever and engagable with said detent gates to restrict movement of said shift lever, said pawl biased into engagement with said detent gates;

a rod movably disposed in said elongated cavity, said rod operably connected with said pawl and with said release button, such that manipulation of said release button selectively releases said pawl;

said rod having an annular groove and a ring-like resilient member disposed in said annular groove, said rod having a passageway in fluid communication with said annular groove such that said resilient member shifts within said annular groove upon movement of said rod to control fluid flow through said passageway and the amount of force required to move said rod.

17. The shift mechanism of claim 16, wherein:

said rod includes a groove forming said passageway.

18. The shift mechanism of claim 17, wherein:

said groove defines a base wall having a generally cylindrical shape, and sidewalls extending outwardly transverse from said base wall;

at least a portion of said groove extending along said base wall to permit fluid flow past said resilient member.

19. The shift mechanism of claim 18, wherein:

said groove defines a non-uniform cross sectional area having a larger first portion and a smaller second portion;

said resilient member shifting to permit fluid flow through said first portion when said rod is moved in a first direction, and shifting such that fluid flows through said smaller second portion when said rod is shifted in a second direction.

20. The shift mechanism of claim 19, wherein:

said groove extends outwardly along a first one of said sidewalls to permit fluid flow through said groove when said resilient member is seated against said first sidewall.

21. The shift mechanism of claim 20, wherein:

said release button includes an angled wedge surface engaging a first end of said rod and longitudinally shifting said rod upon movement of said release button.

22. The shift mechanism of claim 16, wherein:

said knob includes a cylindrical cavity defining sidewalls;

said release button having an end portion movably disposed in said cylindrical cavity, said end portion defining an axis and having an annular groove and a resilient O-ring disposed in said annular groove, said end portion having an axial groove extending along said axis to said annular groove, said O-ring shifting in said annular groove upon movement of said release button to selectively control fluid flow through said axial groove.

23. The shift mechanism of claim 22, wherein:

said release button is movable inwardly and outwardly;

said annular groove defines a base wall and spaced-apart sidewalls, said axial groove terminates at said base wall such that said O-ring shifts to prevent fluid flow through said axial groove when said release button is moved outwardly, and shifts to permit fluid flow through said axial groove when said release button is moved inwardly.